

PATENT
Serial No. 09/821,122

Amendment in Reply to Final Office Action of July 28, 2005

IN THE CLAIMS

Please amend claims 1-2, 5-6, 9-10, 13-14 and 17-18 as follows:

1 1. (Currently Amended) For use in a transceiver, an adaptive
2 data insertion mechanism for inserting data within a transport
3 stream without destructive disturbance comprising:
4 a bandwidth estimator producing an estimate of future
5 available bandwidth within said transport stream from future
6 programming to be transmitted by said transport stream;
7 a scheduler prioritizing and scheduling insertion of content
8 to be inserted within said transport stream based upon said
9 estimate of future available bandwidth and characteristics of said
10 insertion content; and
11 an insertion unit inserting scheduled insertion content within
12 said transport stream by replacement of selected replaceable
13 content within said transport stream to form a new transport
14 stream.

1 2. (Currently Amended) The adaptive data insertion mechanism
2 as set forth in Claim 1 wherein said bandwidth estimator further
3 produces said estimate of future available bandwidth from periodic

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4 bandwidth utilization measurements for said transport stream and
5 information regarding current ~~and future~~ programming to be
6 transmitted by said transport stream.

1 3. (Original) The adaptive data insertion mechanism as set
2 forth in Claim 1 wherein said insertion unit replaces selected
3 packets within said transport stream which include one of one or
4 more selected packet type identifiers with packets for said
5 insertion content while passing packets which include packet type
6 identifiers other than said selected packet type identifiers to
7 form said new transport stream.

1 4. (Original) The adaptive data insertion mechanism as set
2 forth in Claim 3 wherein said insertion unit replaces null packets
3 within an MPEG-2 transport stream.

1 5. (Currently Amended) A transceiver comprising:
2 a input connection receiving an incoming transport stream;
3 an output connection from which a new transport stream is
4 transmitted, said new transport stream including at least portions
5 of said incoming transport stream; and

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6 an adaptive data insertion mechanism for inserting data within
7 said incoming transport stream without destructive disturbance
8 comprising:

9 a bandwidth estimator producing an estimate of future
10 available bandwidth within said incoming transport stream from
11 future programming to be transmitted by said transport stream;

12 a scheduler prioritizing and scheduling insertion of
13 content to be inserted within said new transport stream based upon
14 said estimate of future available bandwidth and characteristics of
15 insertion content obtained from a source separate from said
16 incoming transport stream; and

17 an insertion unit inserting scheduled insertion content
18 within said new transport stream by replacement of selected
19 replaceable content within said incoming transport stream to form
20 said new transport stream.

1 6. (Currently Amended) The transceiver as set forth in Claim 5
2 wherein said bandwidth estimator further produces said estimate of
3 future available bandwidth from periodic bandwidth utilization
4 measurements for said incoming transport stream and information
5 regarding current ~~and future programming~~ to be transmitted by said
6 incoming transport stream.

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1 7.(Original) The transceiver as set forth in Claim 5 wherein
2 said insertion unit replaces selected packets within said incoming
3 transport stream which include one of one or more selected packet
4 type identifiers with packets for said insertion content while
5 passing packets which include packet type identifiers other than
6 said selected packet type identifiers to form said new transport
7 stream.

1 8.(Original) The transceiver as set forth in Claim 6 wherein
2 said insertion unit replaces null packets within an MPEG-2
3 transport stream.

1 9.(Currently Amended) For use in a transceiver, a method of
2 adaptive data insertion within a transport stream without
3 destructive disturbance comprising:

4 producing an estimate of future available bandwidth within the
5 transport stream from future programming to be transmitted by the
6 transport stream;

7 prioritizing and scheduling insertion of content to be
8 inserted within the transport stream based upon the estimate of

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9 future available bandwidth and characteristics of insertion
10 content; and
11 inserting scheduled insertion content within the transport
12 stream by replacement of selected replaceable content within the
13 transport stream to form a new transport stream.

1 10. (Currently Amended) The method as set forth in Claim 9
2 wherein the step of producing an estimate of future available
3 bandwidth within the transport stream further comprises:
4 producing the estimate of future available bandwidth from
5 periodic bandwidth utilization measurements for the transport
6 stream and information regarding current ~~and future~~ programming to
7 be transmitted on the transport stream.

1 11. (Original) The method as set forth in Claim 9 wherein the
2 step of inserting scheduled insertion content within the transport
3 stream by replacement of selected replaceable content within the
4 transport stream to form a new transport stream further comprises:
5 replacing selected packets within the transport stream which
6 include one of one or more selected packet type identifiers with
7 packets for the insertion content while passing packets which

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8 include packet type identifiers other than the selected packet type
9 identifiers to form the new transport stream.

1 12.(Original) The method as set forth in Claim 11 wherein the
2 step of replacing selected packets within the transport stream
3 which include one of one or more selected packet type identifiers
4 with packets for the insertion content while passing packets which
5 include packet type identifiers other than the selected packet type
6 identifiers to form the new transport stream further comprises:
7 replacing selected null packets within an MPEG-2 transport
8 stream.

1 13.(Currently Amended) A computer program product within a
2 computer usable medium for adaptive data insertion within a
3 transport stream without destructive disturbance comprising:
4 instructions for producing an estimate of future available
5 bandwidth within the transport stream derived from future
6 programming to be transmitted by said transport stream;
7 instructions for prioritizing and scheduling insertion of
8 content to be inserted within the transport stream based upon the
9 estimate of future available bandwidth and characteristics of
10 insertion content; and

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11 instructions for inserting scheduled insertion content within
12 the transport stream by replacement of selected replaceable content
13 within the transport stream to form a new transport stream.

1 14. (Currently Amended) The computer program product as set
2 forth in Claim 13 wherein the instructions for producing an
3 estimate of future available bandwidth within the transport stream
4 further comprise:

5 instructions for producing the estimate of future available
6 bandwidth from periodic bandwidth utilization measurements for the
7 transport stream and information regarding future-current
8 programming to be transmitted on the transport stream.

1 15. (Original) The computer program product as set forth in
2 Claim 14 wherein the instructions for inserting scheduled insertion
3 content within the transport stream by replacement of selected
4 replaceable content within the transport stream to form a new
5 transport stream further comprise:

6 instructions for replacing selected packets within the
7 transport stream which include one of one or more selected packet
8 type identifiers with packets for the insertion content while
9 passing packets which include packet type identifiers other than

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10 the selected packet type identifiers to form the new transport
11 stream.

1 16.(Original) The computer program product as set forth in
2 Claim 15 wherein the instructions for replacing selected packets
3 within the transport stream which include one of one or more
4 selected packet type identifiers with packets for the insertion
5 content while passing packets which include packet type identifiers
6 other than the selected packet type identifiers to form the new
7 transport stream further comprise:
8 instructions for replacing selected null packets within an
9 MPEG-2 transport stream.

1 17.(Currently Amended) A data transport stream comprising:
2 a first portion derived from a transport stream; and
3 a second portion derived from insertion content, wherein a
4 ratio of the first portion to the second portion is determined by
5 ~~characteristics of insertion content and an estimate of available~~
6 bandwidth within said transport stream representing selected
7 replaceable content within said transport stream and by insertion
8 of said insertion content by replacement of said selected

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9 replaceable content within said transport stream with portion of
10 said insertion content to form said data transport stream,
11 wherein said estimate of available bandwidth within said
12 transport stream is derived from information regarding future
13 programming to be transmitted on said transport stream.

1 18. (Currently Amended) The data transport stream as set forth
2 in Claim 17 wherein said estimate of available bandwidth within
3 said transport stream is further derived from periodic bandwidth
4 utilization measurements for said transport stream and information
5 regarding ~~future~~ current programming to be transmitted on said
6 transport stream.

1 19. (Original) The data transport stream as set forth in Claim
2 17 wherein:
3 said first portion further comprises packets within said
4 transport stream which include packet type identifiers other than
5 one or more selected packet type identifiers; and
6 said second portion further comprises packets for said
7 insertion content in place of packets within said transport stream
8 which include one of said one or more selected packet type
9 identifiers.

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1 20.(Original) The data transport stream as set forth in Claim
2 19 wherein said second portion further comprises packets for said
3 insertion content in place of null packets within an MPEG-2
4 transport stream forming the transport stream.